



California Air Toxics Program - Brochure

This page updated November 18, 1998.

TABLE OF CONTENTS

• <u>California's Air Toxics Program - Responsible Regulation Protects The Public's Health</u>
• <u>California's Air Toxics Program - Identification, Prevention, and Control</u>
• <u>Risk Assessment - Identifies Health Risk To The Public</u>
• <u>Risk Management - Reduces Emissions From High Risk Sources</u>
• <u>Air Toxics "Hot Spots" Program - Increases Community Awareness Of Air Toxics</u>
• <u>Interagency Cooperation</u>
• <u>Future Directions</u>

California's Air Toxics Program - Responsible Regulation Protects The Public's Health

Danger in the Air

When you breathe, life-giving oxygen flows into your lungs. Unfortunately, in that same breath you may be inhaling other chemicals known as air toxics--unhealthy, airborne wastes from many products, services, and industrial processes. The long-term effect of breathing these substances is an increase in the risk of cancer or other serious health

problems.

The Public Demands Protection

In the 1980's, serious industrial accidents heightened public concern over the dangers of air toxics. At the same time, researchers warned that exposure to very small amounts of toxic chemicals could cause long-term health problems. As a result, citizens demanded protection and control over the release of air toxics.

Air Toxics Laws Reduce Risk

In the early 1980's, the Air Resources Board (ARB) established one of the nation's first comprehensive state air toxics programs. The Toxic Air Contaminant Identification and Control Act (AB1807-1983) created California's program to reduce the health risks from air toxics. This law expanded the ARB's authority to evaluate and control air toxics.

An additional state law, the Air Toxics "Hot Spots" Information and Assessment Act (AB2588-1987), supplements the original legislation by requiring a statewide air toxics inventory and notification of local residents of significant risk from near-by sources of air toxics. A 1992 amendment to the law (SB1731) requires that the risk be reduced from these significant sources.

These laws enabled California to become one of the nation's leaders in air toxics control.

Open Process Seeks Balanced Solutions

The Air Resources Board and the local air districts encourage the public and industry to participate in the process of reducing air toxics. In developing controls that balance the health and economic interests of all Californians, these agencies seek to reduce risk in a fair, cost-effective way.

What Are Air Toxics?

Air toxics are substances which may cause or contribute to an increase in cancer or serious illness, such as respiratory disease. State and local air pollution control agencies adopt measures to minimize Californians' exposure to these chemicals.

California's Air Toxics Program - Identification, prevention, and Control

Regulations Reduce the Highest Risks First

The goal of the Air Toxics program is to protect the public health. It does this by reducing the air toxic emissions that pose the highest risk to Californians. This requires two separate steps. During the first step, risk assessment, the ARB identifies the highest risk substances. In the second or risk management step, the ARB and local air pollution

control districts (APCDs) investigate and adopt measures requiring air toxics sources to minimize risk to public health.

"Hot Spots" Program Informs the Public

The Air Toxics "Hot Spots" program requires facilities to report their air toxic emissions. Facilities with emissions that pose a significant risk to public health must notify the local community of the potential risk and then take steps to reduce that risk.

Cooperation Strengthens All Environmental Programs

Some environmental hazards threaten all natural media--air, water, and soil. The ARB, APCDs, and other environmental and health agencies work together in such areas as pesticide regulation, hazardous waste site assessment and management, and landfill gas control. The goal is to coordinate regulation in a way that protects all parts of the environment.

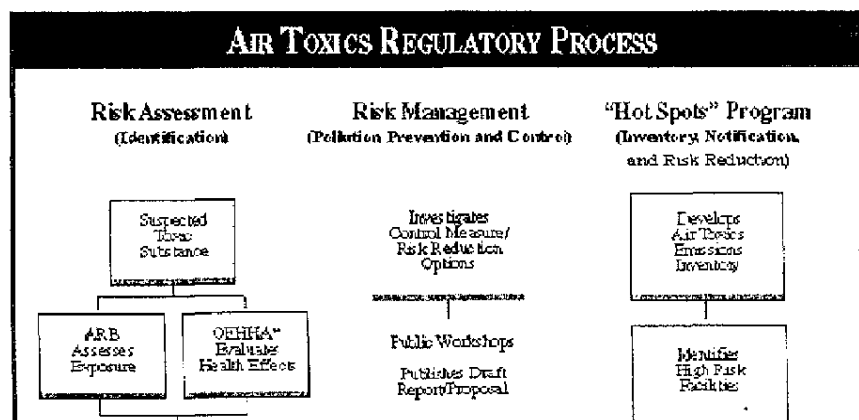
Integration of Federal and State Air Toxic Programs Begin

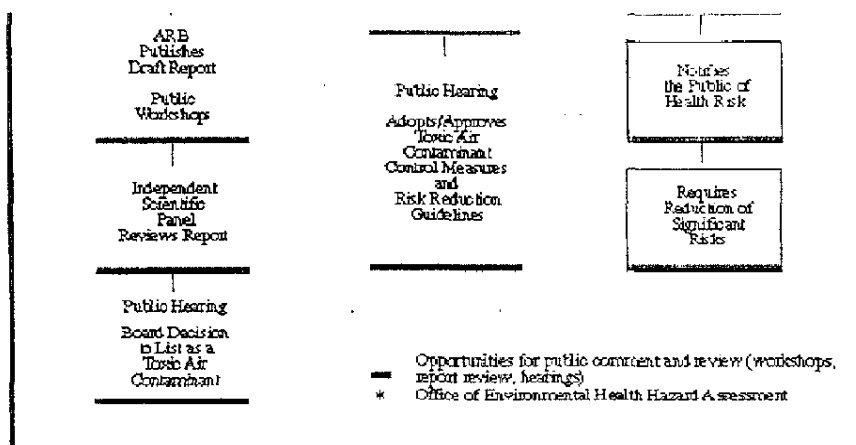
The 1990 Amendments of the federal clean air act set up a new, nationwide air toxics control program. The federal program focuses on larger industrial sources that are of the highest national priority, such as chemical manufacturers.

California's program focuses on protecting Californians from all significant sources, regardless of size. The ARB is working with federal and local agencies to implement the federal requirements in California while maintaining current public health safeguards and avoiding regulatory duplication.

Toxic Air Contaminants

Toxic air contaminants (TAC) are substances identified in state regulations by the ARB. In 1993, the ARB expanded the TAC list to almost 200 substances to include the hazardous air pollutants identified in the federal Clean Air Act Amendments (1990). The additional substances will be evaluated for potential health effects and prioritized for control measure development.





Risk Assessment - Identifies Health Risk To The Public

Supports Informed Choice

As individuals, we can control certain risks in life. For example, we decide what to eat, how fast to drive, or whether to smoke. We accept the risk that goes with those personal choices.

But other risks, such as those from air toxics, are largely the result of other people's decisions. Because individuals cannot effectively protect themselves from the risk posed by air toxics, California passed laws to protect the public. These require sources to reduce the level of risk. The first step is a risk assessment—an information-gathering process that helps the public, industry, and regulators make informed choices about air toxics.

Estimates the Potential Harm

Air toxics can cause long-term health problems such as cancer, chronic eye, lung, or skin irritation, and neurological and reproductive disorders. Risk assessments focus on these human health effects.

California's air toxics risk assessments, based on the best current scientific information, estimate the potential harm posed by certain substances.

What are Risk Estimates?

The findings of risk assessments often include a "best value" estimate of the potential number of excess cancers from exposure to a specified amount of a substance over a specified period. The "best value" estimate is based on conservative assumptions to better protect the public health, so the actual risk may be lower.

A "best value" risk estimate, used with the concentration of the substance in the air and

the number of people exposed, allows risk managers to estimate the relative, potential health impacts on the public.

Evaluates Health Effects

During a risk assessment of a suspected toxic chemical, the Office of Environmental Health Hazard Assessment evaluates the health effects information. This is not easy.

Because the public is exposed to a wide variety of toxics, isolating the human health effects of a particular substance is difficult. As a result, most of what we know is based on studies of worker exposure on the job or of laboratory animals. Using these studies and measurements of toxics in the environment, scientists evaluate the potential effects of a substance on human health. These evaluations give decision makers a common yardstick for determining which substances need immediate control.

Assesses Exposure

The ARB assesses the potential for human exposure to the substance in California. The factors considered are:

- Emissions from many types of sources-large and small, industrial and vehicular,
- Substance uses,
- Ambient and indoor concentration,
- Statewide exposure, and
- Atmospheric persistence and fate.

Public and Independent Scientific Review

Draft reports of both agencies' findings are published for public review and comment. Comments can be made in writing or at public workshops. The Scientific Review Panel, an independent group of scientists, reviews the reports for scientific accuracy and then submits its recommendation and the reports to the Board.

Board Decision at Public Hearing

At a public hearing, the Board decides whether to list the substance as a toxic air contaminant. If a substance is listed, the ARB begins the process of risk management.

Businesses Voluntarily Reduce Toxics

When the ARB identifies a substance as a toxic air contaminant, some companies take the initiative to clean up their toxic emissions prior to adoption of control measures. The results may include:

- Less risk to the public and workers,
- Reduced operating costs,
- Improved relations with the community and regulatory agencies, and
- Less need for regulation.

Case Study - Voluntary Reduction

The Dow Chemical U.S.A. plant in Pittsburg is California's only producer of carbon tetrachloride and the state's largest source of emissions of that chemical. As the ARB identified carbon tetrachloride as a toxic air contaminant, Dow applied the best available control technology to the handling and storage of this chemical and reduced emissions by over 90 percent—from 45 to 3 tons per year. Other major users of carbon tetrachloride also implemented effective controls.



With the major sources under control, the ARB found that further regulation was not needed.

Risk Management - Reduces Emissions From High Risk Sources

Investigates the Need for Control

After a substance is identified as a toxic air contaminant, the ARB investigates the need, feasibility, and cost of reducing emissions of that substance. If controls are justified, the ARB adopts a control measure. Local air pollution control districts then adopt and enforce equivalent or more restrictive measures to reduce emissions of the toxic air contaminant.

The ARB has adopted eight control measures. In addition, California regulations to control smog, particularly the Low Emission Vehicle and reformulated fuel regulations, significantly reduce toxic air pollution from vehicles.

Smog Regulations Cut Toxics Exposure

Regulations to cut smog or other pollutants also reduce air toxics. The Low Emission Vehicles/Clean Fuels regulations (1990) and the Phase 2 reformulated gasoline regulations (1991) will reduce air toxics emissions from cars and light-duty trucks by 30 percent by the year 2000 and 45 percent by the year 2010.

New diesel fuel specifications and ARB's Heavy Duty Diesel Inspection Program will reduce air toxics and other pollutants from diesel exhaust.

Case Study - Voluntary Reduction

3M's Data Storage Tape Technology Division facility was recognized for "environmental leadership and noteworthy achievement to protect and enhance California's air quality." From left, Ray Richelsen, 3M group vice president, Memory



Technologies Group; Kevin Rubey, plant manager, 3M Camarillo; and James M. Strock, Secretary, Cal/EPA.



3M Wins Clean Air Award for Pollution Reductions

In 1992, 3M completed installation of a \$10 million solvent recovery system at its Data Storage Tape Technology Division facility in Camarillo, California. This and other recent improvements reduced the plant's emissions of volatile organic compounds by over ninety percent. Toxic emissions of methyl ethyl ketone and toluene were cut by eighty-five percent. The new system has lowered energy needs by over ninety percent, water consumption by over ten percent, and solvent usage by over fifty percent—resulting in significant cost savings. For these and other environmental efforts, 3M received the Cal/EPA Air Resources Board's "Clean Air Award" in November 1993.

Industry-Government Project Combines Pollution Prevention With Effective Controls

For their work to advance pollution prevention and the control of hexavalent chromium emissions, the Air Resources Board and the Metal Finishing Association of Southern California received a South Coast Air Quality District's 1992 Clean Air Award.

The two organizations cooperated in a demonstration project showing that simple process changes, combined with control equipment used successfully in other industries, consistently reduced hexavalent chromium emissions well below the required emission limit. The findings from this project will reduce exposure of the public to hexavalent chromium—preventing up to 2,600 potential cancer cases over the next 70 years.

ADOPTED CONTROL MEASURES			
Source	Substance Controlled	Control Measure	No. Facilities Controlled
Gasoline Service Stations	Benzene	Requires vapor recovery for service stations. Most of the state's 14,000+ stations already use vapor recovery for hydrocarbon control.	300
Chrome Plating and Anodizing Shops	Hexavalent Chromium	Requires plating or anodizing shops to reduce emissions by 95 to 99.8 percent.	400
Cooling Towers	Hexavalent Chromium	Prohibits the use of hexavalent chromium in the circulating water.	1000
Sterilizers and Aerators	Ethylene Oxide	Requires 95 to 99 percent control of ethylene oxide from sterilizers and aerators.	450
Medical Waste Incinerators	Dioxins	Requires 99 percent reduction of dioxins.	150
Serpentine Rock in Surfacing Applications	Asbestos	Prohibits the use of serpentine rock containing greater than 5 percent asbestos for surfacing unpaved roads and surfaces.	All Unpaved Roads
Dry Cleaners	Perchloroethylene	Requires use of best available control technologies on dry cleaning machinery.	4800
Non-Ferrous Metal Melting Operations	Cadmium, Nickel, Arsenic	Requires 95 percent reduction of toxic metal emissions.	100
Low-Emission Vehicle Clean	Benzene, 1,3-	Requires production of vehicles 50 to 95 percent cleaner than new 1993 vehicles and requires cleaner fuels to	New Cars and Light Trucks (Starting in

Fuels Regulation	Butadiene	Released and Assessed Amounts Must be available to consumers.	Starting in 1994
Reformulated Gasoline	Benzene, 1,3-Butadiene,	Limits benzene content, vapor pressure, sulfur, aromatic hydrocarbons, olefins, oxygen, and distillation temperatures.	All (22 million) Gasoline-Powered Vehicles (Starts 1996)
Reformulated Diesel	Diesel Exhaust	Limits sulfur and aromatic hydrocarbon content	All (550,000) Diesel-Powered Vehicles (Starts 1993)

Air Toxics "Hot Spots" Program - Increases community Awareness Of Air Toxics

The Air Toxics "Hot Spots" Information and Assessment Act established an air toxics emissions reporting program in California. It requires stationary sources to report the type and quantity of toxic substances routinely released to the air. The resulting inventory and subsequent risk assessments:

- Identify facilities posing the highest risk,
- Uncover significant sources of toxic air pollution that were previously unknown and uncontrolled,
- Inform local residents of high risk facilities,
- Help identify priorities for air toxics identification and control, and
- Motivate industry to voluntarily reduce air toxics emissions and risk.

The "Hot Spots" Program at Work

The Air Toxics "Hot Spots" program increases community awareness of sources of local air toxics emissions. The program involves five steps:

Emissions Inventory - About 30,000 facilities must report their emissions of any of over 700 hazardous substances.

Facilities Prioritization - Local air pollution control districts prioritize facilities based on the amount and toxicity of substances released and proximity to public places. High priority facilities must prepare a health risk assessment.

Risk Assessment - High priority facilities must identify any adverse effects of emitted pollutants, estimate public exposure, and, finally, estimate the health risk associated with air toxics emissions.

To help affected businesses, the Office of Environmental Health Hazard Assessment is developing risk assessment guidelines.

Public Notification - If the local air district determines that the emissions from a facility pose significant health risks, the facility must notify the local public of the risk assessment findings.

Risk Reduction - Under an additional requirement adopted in 1992, facilities that pose a

significant risk to the health of the community must reduce the risk through a risk management plan.

The ARB is working with businesses to help them meet this requirement. For instance, the ARB plans to develop risk reduction guidelines that will help a facility owner identify emission points in their facility and will offer a menu of risk reduction options.

"Hot Spots" Program Spurs Reductions

An ARB survey found 21 companies which voluntarily reduced air toxics emissions by almost 2 million pounds in recent years. This sample of California's air toxics sources suggests a larger, statewide trend and points to a significant benefit of the "Hot Spots" regulation.

Good for Business and the Environment-The "Hot Spots" program is an example of how a law can be good for the environment and business too. Some of the surveyed companies reported that the preparation of their air toxics "Hot Spots" emission inventory alerted them to the actual cost of waste in their processes and motivated them to look for ways of streamlining their operations.

The "Hot Spots" emission inventory-combined with concern for worker safety and the possibility of future regulation-led companies to reduce emissions by substituting less toxic materials in their processes or by establishing more efficient operations. These emission reductions lower the health risk to workers and the public while helping to improve company performance and relations with the community.

Companies Demonstrate Less Toxic Options

Substitute Materials Reduce Emissions - Caspian Inc., a San Diego aerospace contractor, developed and substituted a less toxic, water-based coating in their chemical milling process. This change has reduced emissions of perchloroethylene from over 450 tons per year in 1987 to less than 10 tons per year in 1992.

The substitution of less toxic materials and the associated reduction in perchloroethylene emissions also reduced insurance costs and demonstrated the successful use of a less hazardous process. The United States Environmental Protection Agency has recognized Caspian for its pro-active steps to reduce emissions of air toxics.

More Efficient Operation Cuts Material Costs - Reichhold Chemical, Incorporated, is a manufacturer of polyester resin in Oxnard. When the company found that alternatives to methylene chloride would contribute to the formation of smog, they adopted controls that allowed them to condense, recover, and reduce leakages of the toxic material. This reduced annual methylene chloride emissions by over 49,000 pounds from 1991 levels. Reichhold reported savings on raw materials and anticipates saving on long-term waste disposal.

Interagency Cooperation

Pesticides, Hazardous Waste, and Landfills Emit Air Toxics

The ARB offers technical support to the state and local agencies responsible for control of these potential environmental hazards. Past projects include air monitoring of outdoor concentrations of pesticides to assist the Department of Pesticide Regulation, assistance to state and local agencies with clean-up at the McColl hazardous waste site in Southern California, and development of suggested controls for landfill gas.

Air Toxics Monitoring

To meet the demand for information on levels of air toxics around the state, the ARB operates a 22 station air toxics monitoring network. The monitoring program has:

- Developed a database of long-term, state-wide monitoring data for 38 compounds and
- Developed and improved methods for monitoring toxic substances.

Future Directions

During the past decade, California's Air Toxics program has identified and required the control of those air toxics that pose the greatest risk to the public health. Much has been accomplished, but many challenges remain. The ARB will continue working with the local air pollution control districts, industry, and others to improve the program. In the coming years, the ARB will:

• Continue to focus on identifying and controlling compounds and sources which pose the greatest potential risk to California citizens;

• Assist businesses in reducing air toxics emissions and complying with regulations by:

- providing industry-specific and general guidance on conducting self audits and developing risk reduction plans;
- providing assistance in identifying and understanding regulatory requirements;
- working with the U.S. EPA to establish an air toxics control technology clearinghouse;
- evaluating additional ways to streamline the "Hot Spots" reporting requirements, including the electronic reporting of air toxics emissions data;

• Work with the U.S. EPA and local air pollution control districts to ensure that new federal air toxics requirements complement state and local programs and avoid regulatory duplication;

• Provide guidance to the local air pollution control districts on developing risk management programs for new and modified stationary sources;

• Continue to explore opportunities for cost-effective pollution prevention and control;

Participate in the California Environmental Technology Partnership, a partnership between government, industry, academia, financial institutions, and public interest groups, to promote research, development, commercialization, and export of environmentally beneficial technologies, products, and services;

Assist the Office of Environmental Health Hazard Assessment in developing new tools to assess risk to public health; and

Expand interagency and multimedia coordination as appropriate to maximize the use of limited resources.

(June 1994)

Top of page
Background Literature on Air Quality

A department of the California Environmental Protection Agency